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Thermal structure of the MLT region during WADIS 2 campaign

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As part of the WADIS project (Wave propagation and dissipation in the middle atmosphere: energy budget and distribution of trace constituents) on 5th of February 2015 a sounding rocket was launched from the Andoya Space Center (69°N, 16°E) in Norway.
Up to 24 hours continuous measurements around the rocket launch time with different instruments located at the ALOMAR observatory (Arctic Lidar Observatory for Middle Atmosphere Research) near the launch site are available. Vertical profiles of temperature and density of the ALOMAR RMR-, the IAP Fe-lidar and the ALOMAR Na-lidar are compared with high resolved large-area images of the Utah State University Advanced Mesospheric Temperature Mapper (AMTM). The in-situ measurements of the WADIS 2 rocket are also compared to the remote sensing instruments.
We found strong tides in lidar temperature measurements during the whole night. The rocket born vertical temperature profiles are in good agreement to the lidar data and show large vertical temperature gradients which are caused by tides. The OH temperatures (AMTM) are in good agreement to the lidar measuremets and show the same tidal caused temperature changes.